

## **Draft Existing Use Determination and Rationale:**

### **Unnamed Tributary to the North Branch**

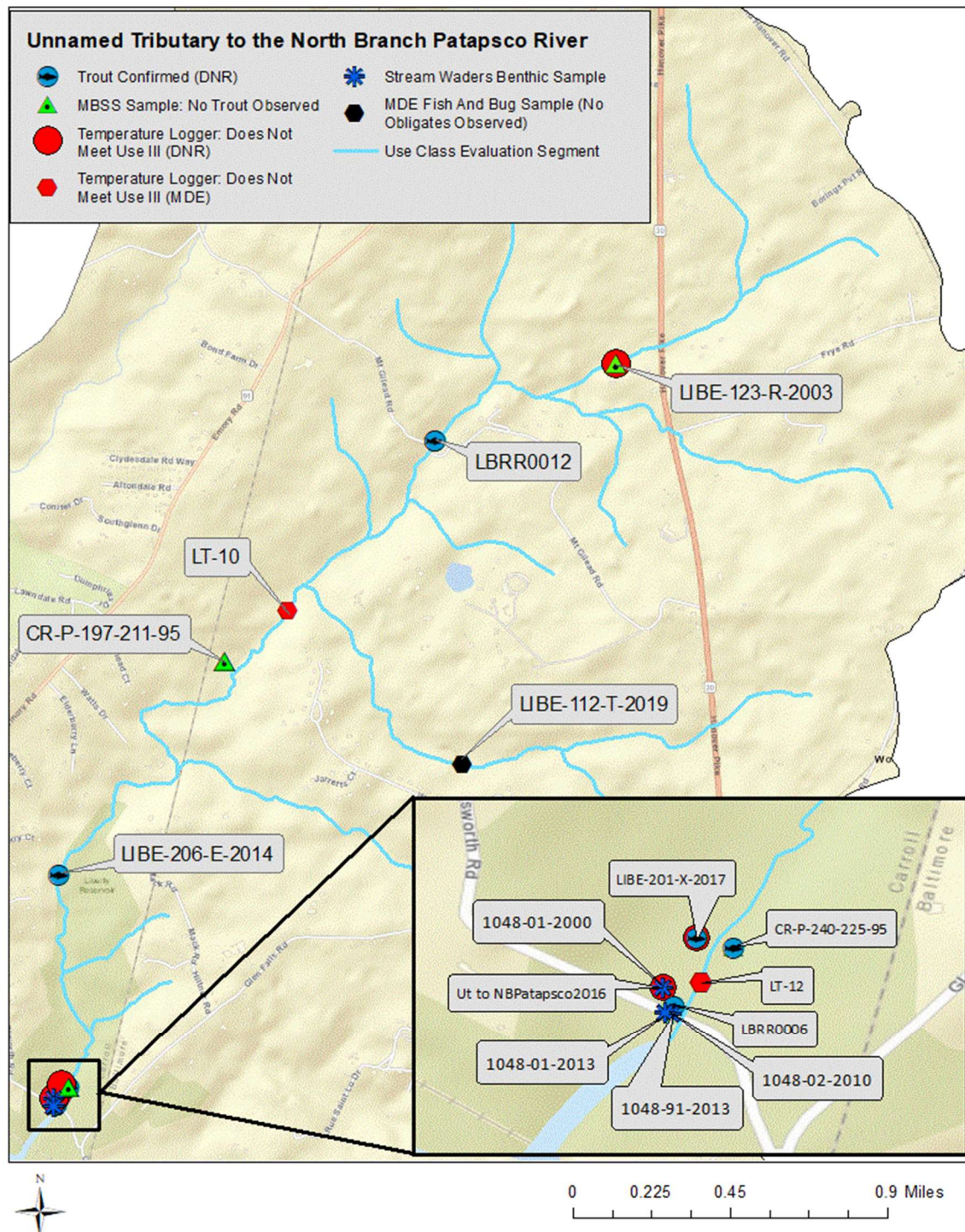
### **Patapsco River (Carroll and Baltimore County)**

**April 22, 2020**

#### **Description of Setting and Data Sources**

The unnamed tributary to the North Branch Patapsco River (Use Class I-P, 12-digit 021309071048) located north of Finksburg at the Hollingsworth Road crossing is approximately 9 miles in length. The MDDNR Fisheries and MBSS Programs, MDE Field Services Program, and Stream Waders volunteers conducted surveys of this waterbody segment. The figure below shows the location and sampling stations on this unnamed tributary. The data results (Tables 1 and 2) including water temperature and trout species information are provided.

Figure 1: Unnamed Tributary to North Branch Patapsco River



## Temperature Data Summary for the Unnamed Tributary to the North Branch Patapsco River

Water temperature data were collected at five sampling events in the stream system being evaluated. None of the stations' water temperature results meet the Class III criterion.

Table 1. Unnamed Tributary North Branch Patapsco River Water Temperature Logger Data

Date	Station ID	Stream	Data Submitter	# Temp Readings	Percent>20°C	Percent>24°C	Avg Daily Mean	Daily Max
2019	LT-10	UT to North Branch Patapsco River	MDE Field Services	8735	40%	0.2%	19.4	24.6
2019	LT-12	UT to North Branch Patapsco River	MDE Field Services	8735	55%	0.8%	20.0	25.11
2016	UT to North Branch Patapsco River2016	UT to North Branch Patapsco River	MDDNR Fisheries Program	6623	67%	4%	20.79	25.60
2017	LIBE-201-X-2017	UT to North Branch Patapsco River	MDDNR MBSS	6624	54%	0%	19.97	24.24
2003	LIBE-123-R-2003	UT to North Branch Patapsco River	MDDNR MBSS	6191	31%	0%	18.70	23.82
1995	CR-P-197-211-95	UT1 to North Branch Patapsco River	MDDNR MBSS	-	-	-	-	-

Date	Station ID	Stream	Data Submitter	# Temp Readings	Percent>20°C	Percent>24°C	Avg Daily Mean	Daily Max
1995	CR-P-240-225-95	UT1 to North Branch Patapsco River	MDDNR MBSS	-	-	-	-	-

\*Water temperature logger data assessed from June to August. The "Daily Max" represents the maximum temperature from June to August. Temperature loggers were not deployed for MDDNR MBSS round 1 (1994-1997).

### Biological Data Summary for the Unnamed Tributary to the North Branch Patapsco River

Brown trout were found at 5 biological sampling events (Level 3 data) in 1992, 1995, 2014, 2016, and 2017. Though not shown in the table below, MDDNR MBSS staff noted the capture of 4 adult brown trout (length measurements not provided) upstream of the station LIBE-201-X-2017. Since these fish were sampled outside of the 75-meter sampling reach they were not counted or measured as part of the record for LIBE-201-X-2017. The MDDNR Fisheries Program did not attempt to collect coldwater obligate benthic macroinvertebrate species, and MDDNR MBSS sampling events did not yield any coldwater obligate benthic macroinvertebrate species.

MDE field services conducted a biological sampling event in 2019 that did not yield any brown trout (LIBE-112-T-2019). However, MDE biologists did state that this sample had "probable sweltsa". Specifically, MDE Field Services have stated:

- *Mature Sweltsa have clothing hairs on their mesosternum. They can grow to be 12 mm, and the largest of the immature Chloroperlidae found was 7 mm. These immature Chloroperlidae had "pimples", also referred to as "stubble" in keys, indicating mesosternal clothing hairs were starting to develop. Based on Jane Earle's (PA-DEP) and Ellen Freidman's (MD-DNR) past findings these immature Chloroperlidae are likely Sweltsa. Stonefly experts recommend caution in attempting to identify immature specimens. Keys are written for mature specimens.*

There were 4 MDDNR Stream Waders sampling events (Level 2 data) that occurred in 2000, 2010, and 2013. The sampling events did not yield any coldwater obligate benthic macroinvertebrate species.

Table 2. Unnamed Tributary North Branch Patapsco River Biological Data

Date	Station ID	Stream	DATA SUBMITTER	Species	Count	Maturity
2019	LIBE-112-T-2019	UT to North Branch Patapsc o River	MDE Field Services	-	-	-
6/15/2016	LBRR0006	UT to North Branch Patapsc o River	MDDNR Fisheries Program	brown trout	16	Multiple Year Classes with YOY
8/4/2011	LBRR0006	UT to North Branch Patapsc o River	MDDNR Fisheries Program	-	-	-
7/19/2017	LIBE-201-X-2017	UT to North Branch Patapsc o River	MDDNR MBSS	brown trout	1	YOY
2014	LIBE-206-E-2014	UT to North Branch Patapsc o River	MDDNR MBSS	brown trout	9	Multiple Year Classes with YOY
6/16/2003	LIBE-123-R-2003	UT to North Branch Patapsc o River	MDDNR MBSS	-	-	-
7/31/1995	CR-P-197-211-95	UT to North Branch Patapsc o River	MDDNR MBSS	-	-	-
7/18/1995	CR-P-240-225-95	UT to North Branch Patapsc o River	MDDNR MBSS	brown trout	3	Multiple Year Classes of Adults
1992	LBRR0012	UT to North Branch	MDDNR Fisheries Program	Brown trout	3	Multiple Year Classes with YOY

Date	Station ID	Stream	DATA SUBMITTER	Species	Count	Maturity
		Patapsco River				
4/25/2013	1048-91-2013	UT to North Branch Patapsco River	MDDNR Stream Waders	-	-	-
4/2/2013	1048-01-2013	UT to North Branch Patapsco River	MDDNR Stream Waders	-	-	-
3/20/2010	1048-02-2010	UT to North Branch Patapsco River	MDDNR Stream Waders	-	-	-
3/18/2000	1048-01-2000	UT to North Branch Patapsco River	MDDNR Stream Waders	-	-	-

\* YOY - young-of-year

## DNR Fish Stocking

Maryland DNR has stated that the Freshwater Fisheries program has not stocked the North Branch of the Patapsco River upstream of the Liberty Reservoir since at least 1988. Records of stocking before this time may be unavailable, but the reproducing trout populations in this segment are not the result of recent stocking.

## Existing Use Determination and Rationale

Current Use Class: Class I-P

Existing Use Determination: The unnamed tributary to the North Branch Patapsco River (near Hollingsworth Road), from its confluence with the North Branch Patapsco River to the confluence with an unnamed tributary located at [39.526615° N, -76.846722° W], supports naturalized self-sustaining brown trout (*Salmo trutta*) and water temperatures that have an average daily mean below 20.8°C, daily maximum below 25.6°C, maintains a temperature below

24°C at least 90% of the time and maintains a temperature below 20°C at least 33% of the time (Figure 2).

Is this Existing Use Determination Consistent with the Currently (March 2020) Designated Use Class: **No.** The existing use of this tributary to the North Branch Patapsco River, as described above, requires that water temperatures remain significantly colder than the water quality criterion established to protect the current use class (Class I-P) designation. As a result, the existing use of this tributary to the North Branch Patapsco River requires protections to maintain the colder water temperatures currently found in this stream and different than those afforded by the current use class designation of I-P.

Changes Proposed to the Current Designated Use Class: Though it is clear that the designated use class of this tributary to the North Branch Patapsco River should be revised to reflect and be protective of the existing use, current temperature data do not support the re-designation of this tributary to the North Branch Patapsco River to Class III-P without conducting a use attainability analysis (UAA). Since Maryland is in the process of redefining Class IV/IV-P and potentially developing a new ‘cool water’ use class as part of the work of the Cold Water Advisory Committee, it is not prudent to redesignate this tributary to the North Branch Patapsco River to Class IV-P at this time. Instead, and until Maryland conducts either a UAA or establishes new definitions for Class IV and a cool water use, MDE will formally recognize this tributary to the North Branch Patapsco River (near Hollingsworth Road) as having an existing use requiring colder water temperature than is specified in the criterion for its current designated use class.

Rationale for the Existing Use Determination: Multiple sampling events have shown that there is a naturalized self-sustaining brown trout population immediately upstream of Hollingsworth Road. No sampling events have occurred downstream of Hollingsworth Road. Although not displayed in Figure 1, several brown trout observations occurred in the North Branch Patapsco with one MDE sampling event demonstrating brown trout presence at the Emory Road bridge. The earliest trout observation in this tributary occurred during a 1995 MBSS sampling event located at the CR-P-240-225-95 location.

An MBSS sampling event (LIBE-206-E-2014) and a DNR Fisheries sample (LBRR0012) shows that the self-sustaining brown trout population extends to the confluence upstream of the LBRR0012 station (Figure 2). However, the data has not demonstrated that the naturalized self-sustaining brown trout population utilizes the habitat upstream of this confluence. The existing use of a naturalized self-sustaining brown trout population extends from the confluence with the North Branch Patapsco to the confluence located near Mt. Gilead Road [39.526615 °N, - 76.846722 °W].

Figure 2: Final Existing Use Determination for Unnamed Tributary to the North Branch Patapsco River



